

Comparing SOAP Performance for Various Encodings, Protocols, and Connections

Jaakko Kangasharju

Sasu Tarkoma

Kimmo Raatikainen

Helsinki Institute for Information Technology

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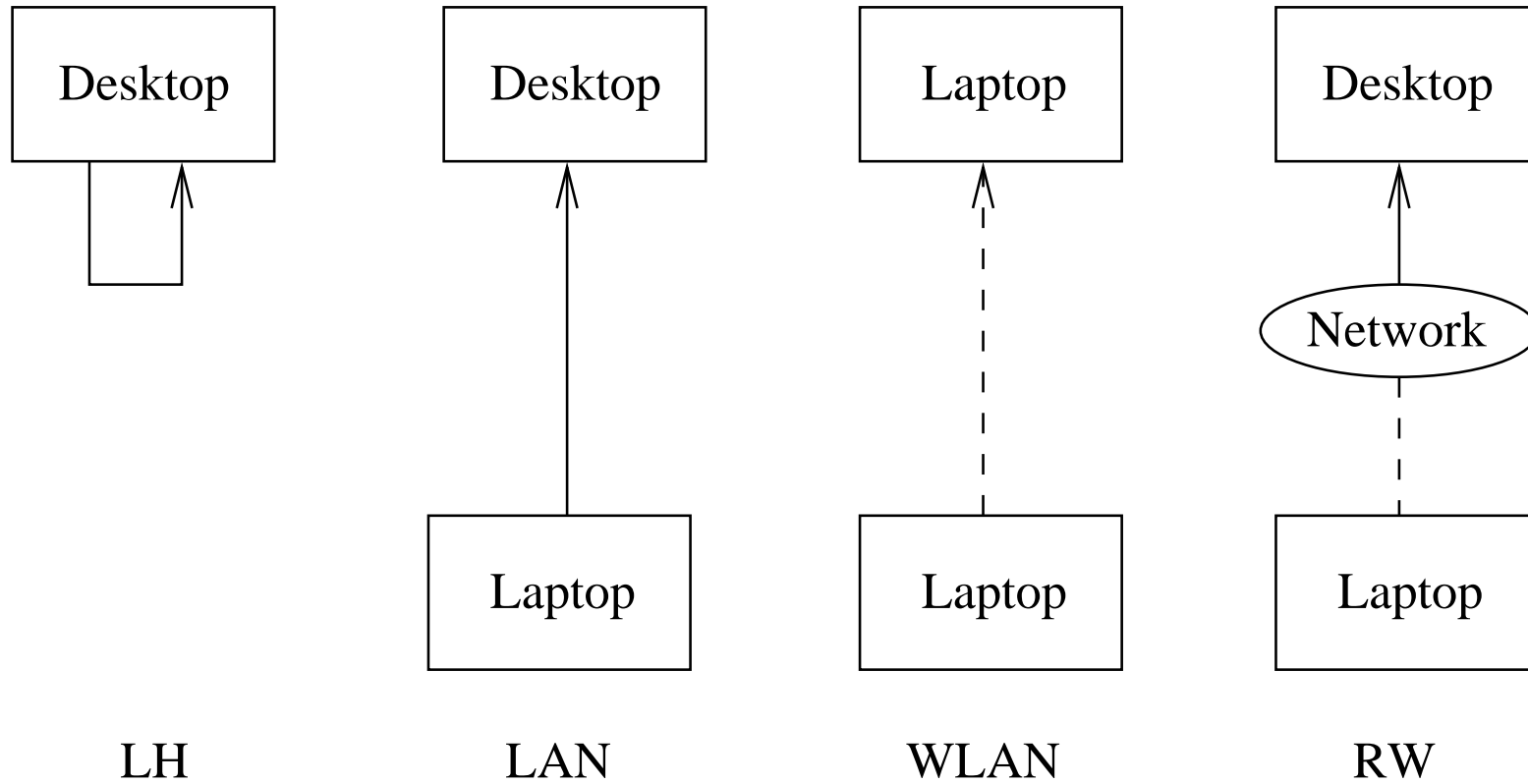
Introduction

- SOAP rapidly gaining popularity as the Web service protocol
- The use of mobile terminals with low-bandwidth, high-latency wireless links increasing
- SOAP used for synchronous RPC as XML over HTTP 1.0 seems to accentuate problems of wireless links
- Need to measure effects that connection persistence, more efficient message encodings, and asynchronous APIs would have on SOAP performance

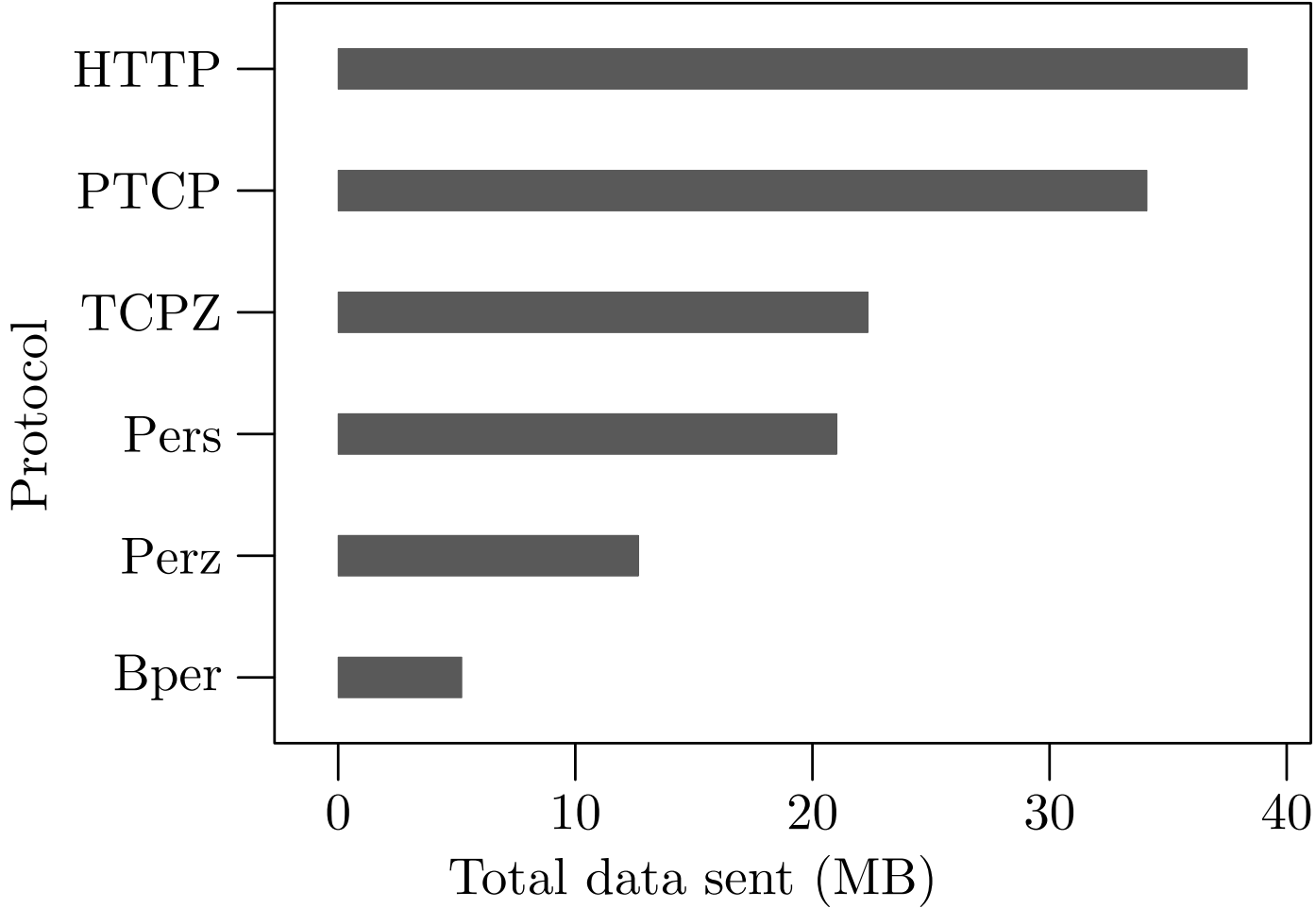
Tested Protocols

- HTTP: Normal HTTP 1.0 with XML
- PTCP: Conn-per-invocation TCP with XML
- TCPZ: Conn-per-invocation TCP with gzipped XML
- Pers: Persistent connection with XML
- Perz: Persistent connection with gzipped XML
- Bper: Persistent connection with binary XML
- Pera: Persistent connection with XML and asynchronous API

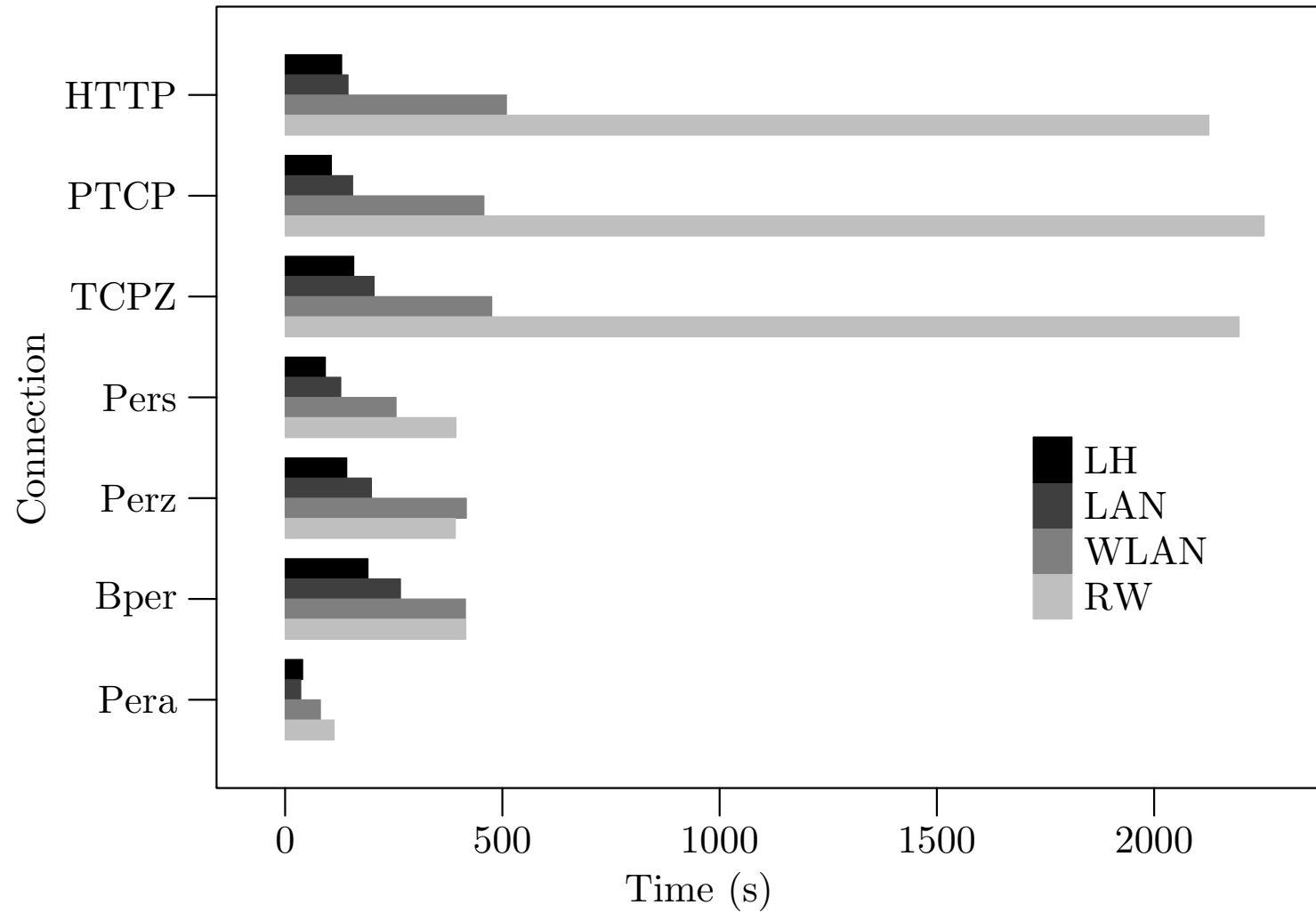
Tested Connections



Measured Data Amounts



Measured Times



Conclusions

- SOAP as XML over HTTP 1.0 is suboptimal in wireless environments
- Persistence of TCP connections is useful both for eliminating connection establishment delays and for decreasing retransmit timeouts
- Generic compression can not do much with the small size of typical SOAP messages; an XML-specific representation fares better
- Programming APIs should by default be asynchronous with synchronous request-response as an option

Thank You!